A30 Contd time of degrading power generation performance of the solar cell element, and withstanding long-term use outside.

IN THE CLAIMS:

Please amend claims 5 and 9 as follows:

A31 5. (Amended) The solar cell module according to claim 1, wherein the water transmission preventing layer is a plate glass bonded on a rear surface resin film.

9. (Amended) The solar cell module according to claim 1, wherein the

A32 water transmission preventing layer is the rear surface resin film with a water vapor transmission rate not higher than $6.3g/m^2 \cdot day$.

Please add new claim 10:

A33 -- 10. (New) The solar cell module according to claim 1, wherein the water transmission preventing layer is a plate glass having a thickness between 0.005 and 0.1 mm bonded on a rear surface resin film. -- 5 μm - 100 μm

A marked-up version of the amended claims is enclosed as required by 37 C.F.R. § 1.121.

REMARKS

The Office Action dated February 13, 2002 has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto. By this Amendment, claims 5 and 9 are amended. Claims 10 is newly added. No new matter is added. Accordingly, claims 1-10 are pending and submitted for consideration.

Fig. 14 was objected to for not being labeled as -- Prior Art --. Fig. 14 has been labeled as such. Attached is a Request for Approval of Drawing Corrections with proposed changes to Figure 14 highlighted in red. Upon approval of the request, formal drawings will be timely filed.

The Office Action objected to the specification citing various informalities. By this amendment, the specification is amended to correct these informalities. No new matter is added. Thus, Applicant respectfully request the withdrawal of the objection to the specification.

The Office Action rejected claims 5, 7 and 9 under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 5 and 9 have been amended to more particularly point out and distinctly claim the invention. These amendments do not narrow the scope of the invention and are merely cosmetic in nature. No new matter is added. With respect to claim 7, it was asserted that the claim was subject to two different interpretations. However, the Applicants are unclear as to which interpretation was used in rejecting the claim. According to MPEP § 2173.06, when making the rejection, the Office Action should state which interpretation was used. Furthermore, as discussed generally in Applicants' specification at page 16, the water transmission preventing layer is interposed between the resin sheets so as to cover the interval between the solar cells. Thus, both the water transmission layer and the solar cell are located within the sealing resin. Accordingly, Applicant respectfully requests withdrawal of the rejection.

The Office Action notes that a certified copies of the priority documents have not been received by the Patent Office. The certified copies of the priority documents are

enclosed with this Response. Acknowledgement of receipt of the priority documents is respectfully requested.

Claims 1-3 and 7 were rejected under 35 U.S.C § 102(e) as being anticipated by Yamagishi et al. (U.S. Patent No. 6,300,556). The Office Action took the position that Yamagishi discloses all the elements of the claimed invention. However, Applicants respectfully submit that claims 1-3 and 7 recite subject matter that is neither disclosed nor suggested in the prior art.

Claim 1 is directed to a solar cell module. The module includes a light transmitting member on a front surface side containing at least sodium and a rear surface resin film. A plurality of solar cell elements are sealed with sealing resin between the light transmitting member on the front surface side and the rear surface resin film. A water transmission preventing layer is arranged in a position including at least an interval part between the solar cell elements adjacent each other.

The Office Action took the position that Yamagishi discloses all of the elements of the claimed invention. However, it is respectfully submitted that the prior art fails to disclose or suggest the structure of the claimed invention, and therefore, fails to provide the advantages of the present invention. For example, the solar cell module of the present invention includes a rear surface resin film and a water transmission layer arranged in a position including at least an interval part between the solar cell elements adjacent each other. As discussed generally in Applicants' specification, a benefit of this claimed configuration is that water entering through the rear surface resin film is blocked.

Yamagishi is directed to a thin film solar cell module that comprises a transparent first electrode layer, a semiconductor layer and a second electrode layer. These layers are deposited on a substrate such as glass and part of the layers are worked by means of a laser beam to thereby partition the layers into a plurality of cells which are then electrically connected with each other. The solar cell module is sealed using ethylene-vinyl acetate copolymer (EVA) thus making it possible to substantially prevent water from penetrating through a peripheral portion of the substrate.

Although Yamagishi appears to disclose a solar cell module, Yamagishi discloses only a rear surface resin. This design is inadequate to prevent water leakage. However, contrary to this, the present invention includes a separate rear surface resin film and a separate water transmission prevention layer. This configuration provides sufficient waterproofing. Additionally, Yamagishi fails to disclose or suggest that the water transmission preventing layer is arranged in a position including at least an interval part between the solar cell elements adjacent each other.

Thus, as discussed above, Yamagishi fails to disclose or suggest a solar cell module having a rear surface resin film and a water transmission preventing. Therefore, it is respectfully submitted that Applicants' invention, as set forth in claim 1 is not anticipated by Yamagishi within the meaning of 35 U.S.C. § 102.

As claims 2, 3 and 7 depend from claim 1, Applicants respectfully submit that each of these claims incorporate the patentable aspects thereof, and are therefore allowable for at least the same reasons as discussed above.

Claims 1-3 and 7 were rejected under 35 U.S.C. § 102(e) as being anticipated by Kondo (U.S. Patent No. 6,271,053). In the Office Action it was asserted that Yamagishi discloses all the elements of the claimed invention. However, Applicants traverse the rejection and respectfully submit that claims 1-3 and 7 recite subject matter that is neither disclosed nor suggested in the prior art.

Kondo discloses a thin film solar battery module having a plurality of unit cells formed on a substrate. The solar cell comprises a tin oxide film 2 formed on a glass substrate made of soda lime glass, an a-Si layer patterned on the oxide film layer, and a protective film 9. In making this rejection, the Office Action asserted that the rear surface resin film 9 also serves as the water transmission preventing layer.

Kondo also only discloses a rear surface resin. However, as discussed above, the present invention includes a separate rear surface resin film and water transmission layer. Therefore, Kondo also fails to disclose or suggest a solar cell module having a separate rear surface resin film and water transmission preventing layer. Thus, it is respectfully submitted that Applicants' invention, as set forth in claim 1 is not anticipated by Kondo within the meaning of 35 U.S.C. § 102.

As claims 2, 3 and 7 depend from claim 1, Applicants respectfully submit that each of these claims incorporate the patentable aspects thereof, and are therefore allowable for at least the same reasons as discussed above.

Claims 4 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Otani et al. (PG-PUB-2001/0009160, "Otani"). In making this rejection, the Office Action took the position that Yamagishi discloses all of the elements of

the claimed invention, except for disclosing the use of an inorganic oxide layer, a nitride layer, or a fluoride layer formed on a surface of the rear surface resin film, as recited by claim 4, or that the water transmission preventing layer is the rear surface resin film with the water vapor transmission rate not higher than 6.3g/m^2 day, as recited by claim 9. Otani is cited for disclosing these limitations.

Otani discloses a covering member for a solar battery. A transparent high-moisture film 12 includes a transparent base film 12A and a moistureproof layer 12B made of an inorganic oxide. High-moisture film 12 is provided in the covering member 11. The covering member is used on the light incident side as a substitute for the glass.

With respect to the limitation of claim 4, the Office Action took the position that it would have been obvious to provide Yamagishi with the inorganic layer of Otani because it is preferably used as a moistureproof layer over metal layers to prevent current leakage.

However, it was asserted in the Office Action that the rear resin surface film of Yamagishi also functions as the water transmission preventing layer. There is no teaching or suggestion that the moistureproof layer of Otani is preferable over that of Yamagishi. Therefore, it appears that the proposed modification is due to impermissible hindsight reasoning because the only reason for making the modification is due to Applicants' disclosure.

Thus, it is respectfully submitted that Applicants' invention, as set forth in claims 4 and 9 is not obvious in view of Yamagishi or Otani within the meaning of 35 U.S.C. § 103.

Additionally, because claims 4 and 9 depend directly from claim 1, Applicants submit that each of these claims recite subject matter that is neither disclosed nor suggested by the cited prior art, for at least the reasons set forth with respect to claim 1.

Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Jansen et al. (U.S. Patent No. 6,077,722, "Jansen"). In making this rejection, the Office Action took the position that Yamagishi discloses all of the elements of the claimed invention, except for disclosing that the water transmission preventing layer is a plate glass bonded on a surface of the rear surface resin film. Jansen is cited for curing this deficiency.

Jansen discloses a monolithic photovoltaic module which comprises a single junction solar cell. The solar cell has a generally planar or flat shape, and a light transmissive substrate is provided for the front glass of the photovoltaic module. The substrate has an external surface and an inwardly facing inner surface and comprises a sodium-containing glass. It was alleged that Jansen teaches the use of a glass rear layer 44 bonded to a rear resin surface film 46, to "provide enhanced environmental protection for the photovoltaic module." It was further alleged that it would have been obvious to use the glass water transmission preventing layer taught by Jansen because the glass would provide the enhanced environmental protection.

However, it was asserted in the Office Action that Yamagishi's rear surface resin film also functions as the water transmission preventing layer. Therefore, it is unclear as to why one of ordinary skill in the art would be compelled to replace the water transmission preventing layer of Yamagishi, as suggested, with the glass water transmission preventing

layer, as taught by Jansen. It appears that this modification is due to hindsight reasoning because the only reason for the modification is taken from the Applicants' specification.

Accordingly, as discussed above, Applicants submit that Yamagishi and Jansen, either alone or in combination, fail to disclose or suggest the claimed invention.

Therefore, it is respectfully submitted that Applicants' invention, as set forth in claim 1 is not obvious in view of the combination of Yamagishi and Jansen within the meaning of 35 U.S.C. § 103.

Further, because claim 5 is dependent on claim 1, Applicants submit that claim 5 recites subject matter that is neither disclosed nor suggested by the cited prior art, for at least the same reasons as claim 1.

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Haigh et al. (U.S. Patent No. 6,265,653, "Haigh"). In making this rejection, the Office Action took the position that Yamagishi discloses all the elements of the claimed invention, except for disclosing that the water transmission preventing layer is formed on a plane with the solar cell elements. Haigh is cited for teaching this limitation.

Haigh discloses an array of photovoltaic cells connected in series, which are electrically isolated from others of the array located on a monolithic semi-insulating substrate. The photovoltaic cells include interconnected array of cells, interconnected substrates, and reflective coatings on the substrate between each cell. A reflective coating is placed over an insulator layer, usually adjacent to the exposed surface of a semi-insulating substrate common to all or a majority of the cells.

The Office Action took the position that it would have been obvious to one of ordinary skill in the art to have the water transmission layer formed on a plane with the solar cell elements because making the modules with water transmission preventing layers on a plane with the solar cell elements would provide protection against water and would also electrically isolate the solar cells from each other, as taught by Haigh. Although the Office Action refers to column 4, lines 33 and 57 and Figure 5 of Haigh as disclosing this limitation, it appears that the proposed modification is due to impermissible hindsight because there is no motivation taught in the prior art for moving the water prevention layer of Yamagishi to the location suggested by Haigh, other than the Applicants' specification.

Therefore, it is respectfully submitted that Applicants' invention, as set forth in claim 6 is not obvious in view of any combination of Yamagishi or Haigh within the meaning of 35 U.S.C. § 103.

Additionally, because claim 6 depends directly from claim 1, Applicants submit that each of these claims recite subject matter that is neither disclosed nor suggested by the cited prior art, for at least the reasons set forth with respect to claim 1.

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Matsushita et al. (U.S. Patent No. 6,222,118, "Matsushita"). In making this rejection, the Office Action asserted that Matsushita discloses all the elements of the claimed invention, except for disclosing that the water transmission preventing layer is provided in a position corresponding to a position between the solar cell elements on an outer side of the rear surface resin film. Matsushita is cited for disclosing this limitation.

Matsushita discloses a semiconductor device and a plurality of solar cell batteries provided between a first substrate and a second substrate. The cell comprises elements 56 and 57 provided on the outer side of substrates 21 and 22. The substrates are comprised of paper or cloth. This design prevents the substrates from absorbing water.

The Office Action took the position that it would have been obvious to modify the solar cell modules of Yamagishi to use the water transmission preventing layers on an outer side of the rear surface resin film because having a water transmission preventing layer on an outer side of the rear film would prevent the rear film from absorbing water, as taught by Matsushita.

However, it was asserted in the Office Action that the rear surface resin film of Yamagishi also functions as the water transmission prevention layer. Thus, it appears that this modification would change the principle of operation of Yamagishi.

Therefore, it is respectfully submitted that Applicants' invention, as set forth in claim 6 is not obvious in view of any combination of Yamagishi or Matsushita within the meaning of 35 U.S.C. § 103.

Further, as claim 8 depends from claim 1, Applicants respectfully submit that claim 8 incorporates the patentable aspects thereof, and is therefore allowable for at least the same reasons as discussed above.

Claims 1-9 are also provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of the co-pending Patent Application No. 09/788,339 in view of the references cited above, Yamagishi, Otani, Jansen, Haigh and Matsushita.

However, Applicant submit that claims 1-9 of the present application recite subject matter that is distinct from claims 1 - 5 of the co-pending application. Specifically, claim 1 of the co-pending application has been amended to recite a solar cell element having a semiconductor junction formed with a p-type or n-type crystalline silicon substrate and n-type or p-type semiconductor layer, and the solar cell element positioning the semiconductor junction at the crystalline silicon substrate on an opposite side of the front surface side light transmitting member.

In contrast, claim 1 of the present invention recites a solar cell module having a rear surface resin film and a water transmission preventing layer arranged in a position including at least an interval part between the solar cell elements adjacent to each other. These features are neither disclosed nor suggested in the claims of the co-pending patent application. Accordingly, Applicants request the withdrawal of the provisional obviousness-type double patenting rejection of claims 1-9.

Additionally, newly added claim 10 further recites that the water transmission preventing layer is a plate glass having a thickness between 0.005 and 0.1 mm bonded on a rear surface resin film. This feature is neither disclosed nor suggested in the prior art.

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of claims 1-10, and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 107336-00016.**

Respectfully submitted,
ARENT FOX KINTNER PLOTKIN & KAHN PLLC

Lynne D. Anderson
Attorney for Applicants
Registration No. 46,412

Enclosures: Certified copies of priority documents
22092/2000, 22094/2000 and 7564/2001
Marked-up Version of Claims
Marked-up Copy of Specification
Petition for Extension of Time
Request for Approval of Drawing Corrections (Fig. 14)
Associate Power of Attorney

1050 Connecticut Avenue, NW, Suite 400
Washington, DC 20036-5339
Telephone: (202) 857-6000

CMM:LDA/cvj

MARKED-UP COPY OF SPECIFICATION

Please replace the Page 1, lines 6-8 with the following paragraph:

This invention relates to a solar cell module, particularly [relates] to a two-side incidence type solar cell module capable of entering light from both front and rear surfaces provided with transparent front and rear surface members.

Please replace the Page 1, lines 11-16 with the following paragraph:

Because solar light is unexhausted energy, a solar cell device for directly converting light energy into electrical energy has been [developed as energy source for substituting with environmentally harmful fossil fuel] developed as an energy source to substitute for environmentally harmful fossil fuels such as petroleum and coal. A plurality of solar cell elements are electrically connected in series or in parallel with each other to form a solar cell module and increase [an] their output. [And the] The solar cell module can be used as a practical energy source.

Please replace the Page 1, lines 18-21 with the following paragraph:

A conventional solar cell module which generates power on [a] one side surface is so structured that a plurality of solar cell elements 110 between a front surface glass 100 and a rear surface member 101 are sealed with a transparent and insulative resin 102 such as EVA (ethylene vinyl acetate).

Please replace the Page 2, lines 17-24 with the following paragraph:

In the meantime, a solar cell module should be weather proof in order to withstand [in] long-term use [in the] outside. The above conventional two-side incidence type structure uses transparent material for the rear surface member. When a transparent resin

film is used as the rear surface member, water is likely to enter as compared with a lamination film with a metal foil sandwiched with plastic films. Therefore, it is necessary to take water penetration into consideration. Although a film of small water vapor transmission rate has been proposed as a transparent resin film, it still requires to be improved.

Please replace the Page 3, lines 5-9 with the following paragraph:

Furthermore, this invention was made to improve reliability of the solar cell module by reducing water reaching to the front surface glass when the rear surface member is [the] resin film and suppressing the sodium ions deposited from the front surface glass from reaching [to] the front surface of the solar cell elements.

Please replace the Page 3, lines 21-24 with the following paragraph:

With the above structure, water [entered] entering though the rear surface resin film is blocked by the water transmission preventing layer and an increase of water contained in the sealing resin between the front surface glass and the solar cell elements can be prevented.

Please replace the Page 4, lines 4-5 with the following paragraph:

The material having a smaller water vapor transmission rate than that of the sealing resin can block water [entered] entering through the rear surface resin film.

Please replace the Page 4 lines 16-17 with the following paragraph:

The thin plate glass can prevent water transmission, and water [entered] entering through the rear surface resin film is blocked.

Please replace the Page 4, lines 22-25 with the following paragraph:

With this structure, water [entered] entering through the rear surface resin film is blocked by the solar cell elements and the water transmission preventing layer, and an increase of water contained in the sealing resin between the front surface glass and the solar cell elements.

Please replace the Page 5, lines 5-8 with the following paragraph:

With this structure, water [entered] entering through the rear surface resin film is blocked by the solar cell elements and the water transmission preventing layer, and an increase of water contained in the sealing resin between the front surface glass and the solar cell elements.

Please replace the Page 7, lines 11-21 with the following paragraph:

First of all, this invention was made on the following conditions. A solar cell module shown in Fig. 14 including a lamination film of an aluminum foil sandwiched with polyvinyl fluoride layers, and a solar cell module only including a PVF film are prepared, and a moisture proof test (JIS C8917) on the two modules [are] conducted to examine causes of degradation of power generation performance by water entrance. In this test, the modules are put in a thermostatic bath of 85°C, 93% RH for approximately 1000 hours and the solar cell characteristics are examined. An acceptable value of output is higher than 95%. In this test, the modules are put in the thermostatic bath for 1000 hours. The rate of change in output is 99.0 % when the rear surface member is a lamination film, and the rate is 92.0 % when the PVF film of 50μ m is used.

Please replace the Page 8, lines 4-9 with the following paragraph:

When the water enters the module, the sodium ions deposited from the front glass migrate in the resin containing water to reach [to] the front surface of the solar cell element, and further diffuse [in an] inside [of] the solar cell element to degrade the power generation performance of the solar cell. As a result, the power generation performance seems to degrade when the rear surface member is the resin film as compared with the lamination film.

Please replace the Page 8, lines 11-14 with the following paragraph:

This invention was made to improve reliability of the solar cell module by reducing water reaching to the front surface glass when the rear surface member is the resin film and to suppress the sodium ions deposited from the front surface glass from diffusing to the front surface of the solar cell elements.

Please replace the Page 8, lines 18-24 with the following paragraph:

One example of a solar cell element 1 used in this invention is explained by referring to Fig. 1. Fig. 1 is a schematic perspective view illustrating one example of a solar cell element capable of entering light from both front and rear surfaces. This solar cell element is so structured that intrinsic amorphous silicon is sandwiched between a single crystalline silicon substrate and an amorphous silicon layer (herein after referred as HIT structure) in order to reduce [defectives] defects on the interface therebetween and improve hetero junction interface characteristics and is capable of entering light from both front and rear surfaces.

Please replace the Page 9, lines 1-18 with the following paragraph:

As shown in Fig. 1, the solar cell element 1 includes an n-type single crystalline silicon substrate 10, an intrinsic amorphous silicon layer 11, and a p-type amorphous silicon layer 12 formed in this order. A transparent electrode 13 on a light receiving side formed of ITO (Iridium Tin Oxide) is formed on an entire surface of the p-type amorphous silicon layer 12, and a comb-shaped collector 14 of silver (Ag) or the like is formed on the transparent electrode 13 on a light receiving side. A rear surface of the substrate 10 has a BSF (Back Surface Field) structure which introduces an internal electric field on the rear surface of the substrate; a high dope n-type amorphous silicon layer 16 is formed with an intrinsic amorphous silicon layer 15 interposed on a rear surface side of the substrate 10. A transparent electrode 17 on a rear surface side formed of ITO is formed on an entire surface of the high dope n-type amorphous silicon layer 16, and a comb-shaped collector 18 of silver (Ag) or the like is formed thereon. The rear surface also has a BSF structure which the intrinsic amorphous silicon layer is sandwiched between the crystalline silicon substrate and a high dope amorphous silicon layer in order to reduce [defective] defects on the interface and improve [characteristic] characteristics of the hetero junction interface.

Please replace the Page 10, line 22 - page 11, line 2 with the following paragraph:

Each of the layers is superimposed on the front surface glass 20, as shown in Fig. 2, and is retained in a vacuumed bath at approximately 100Pa. Then, this lamination structure is heated to [be] 150°C and is pressed with a silicone sheet from the rear surface resin film 5 side by using atmospheric pressure. Through these processes, the EVA sheets 2, 3 are softened and are tentatively adhered. Then, it is retained for approximately one hour in a

thermostatic bath of approximately 150°C, and the EVA sheets 2, 3 are cross-linked to form the solar cell module shown in Fig. 3.

Please replace the Page 11, lines 4-11 with the following paragraph:

Water [entered] entering through the rear surface resin film 5 is blocked by the water transmission preventing layer 7a and an increase of water in the EVA sheet 3 between the front surface glass 20 and the solar cell elements 1 can be prevented. As a result, sodium [ion] ions deposited on the front surface glass 20 [is] are prevented from migrating so as to prevent degradation of power generation performance of the solar cell element.

Please replace the Page 12, lines 17-20 with the following paragraph:

In the embodiment shown in Fig. 4, [an] the EVA resin sheet 3 of 0.6mm in thickness is interposed between the front surface glass 20 and the solar cell element 1, and the EVA sheet 2 of 0.6mm in thickness is interposed between the solar cell element 1 and the water transmission preventing layer 7b.

Please replace the Page 13, line 22- page 14, line 5 with the following paragraph:

In the third embodiment, a water transmission preventing layer 7c of a metal foil or butyl rubber is formed on a part corresponding to an interval between the solar cell elements 1, 1 on an outer side of the rear surface resin film 5 of PVF film of 50μ m in thickness as shown in Fig. 6. When the metal foil of aluminum or the like is used as the water transmission preventing layer 7c, it may be attached to the rear surface resin film 5 by using adhesive such as double [sides] sided adhesive tape. When moisture proof butyl

rubber is used for the water transmission preventing layer 7c, the butyl rubber may be pasted to the part for forming the water transmission preventing layer 7c.

Please replace the Page 15, lines 11-14 with the following paragraph:

With the structure of Fig. 8, water [entered] entering through the rear surface resin film 5 is blocked by the solar cell element 1 and the water transmission preventing layer 7d, and an increase of water in the EVA sheet 3 between the front surface glass 20 and the solar cell elements 1 can be prevented. As a result, a sodium ion deposited on the front surface glass 20 is prevented from migrating so as to prevent degradation of power generation performance of the solar cell element.

Please replace the Page 16, line 24- page 17, line 4 with the following paragraph:

Water [entered] entering through the rear surface resin film 5 is blocked by the water transmission preventing layer 7e and a solar cell element 1, and an increase of water in the EVA sheet 3 between the front surface glass 20 and the solar cell elements 1 can be prevented. As a result, a sodium ion deposited on the front surface glass 20 is prevented from migrating so as to prevent degradation of power generation performance of the solar cell element.

Please replace the Page 17, lines 10-14 with the following paragraph:

Then as shown in Fig. 11, two EVA resin sheets 3, 4 are interposed between the front surface glass 20 and the solar cell elements 1. [And the] The water transmission preventing layer 7e of a metal foil of aluminum or the like is interposed between the resin sheets 3, 4 so as to cover the interval between the solar cell elements 1, 1 by approximately 2mm.

Please replace the Page 18, lines 6-11 with the following paragraph:

In the structure of Fig. 12, the water [entered] entering through the rear surface resin film 5 is blocked by the solar cell element 1 and the water transmission preventing layer 7e, and increase of water in the EVA sheet 3 between the front surface glass 20 and the solar cell elements 1 can be prevented. As a result, a sodium ion deposited on the front surface glass 20 is prevented from migrating so as to prevent degradation of power generation performance of the solar cell element.

Please replace the Page 18, lines 13-20 with the following paragraph:

A distance between the front surface glass 2 and the solar cell element 1 can be great as compared with the solar cell module of the fourth embodiment; for example the distance can be doubled of one which has the single EVA sheet of 0.6mm. As a result, time for the sodium ions deposited from the front surface glass 20 to reach to the solar cell element 1 can [be taken] take longer. Therefore, time taken until starting degradation of power generation performance of the solar cell element can be prolonged and a solar cell module of high reliability capable of withstanding long-term use in the outside can be provided.

Please replace the Page 19, line 21 - page 20, line 2 with the following paragraph:

Sample No. 1 is one that uses a lamination film which an aluminum foil, as a rear surface material, is sandwiched by PVF in order to prevent water entrance from a rear surface and seals the solar cell elements by using an EVA sheet between the front surface glass 20. The No. 2 sample is one that uses a PVF film as a rear surface material. The No. 3-9 samples are ones that have the structures respectively illustrated in the [first-] first

through seventh embodiments of this invention. The conditions of each of the samples are the same except for the condition shown in the table and the solar cell element 1 has the HIT structure of two-side incidence type.

Please replace the Page 22, lines 1-2 with the following paragraph:

The sealing resin of the above embodiments is EVA, and silicone resin, poly vinyl chloride, PVB (poly vinyl butyral), or polyurethane can be also used.

Please replace the Page 22, lines 11-14 with the following paragraph:

The water vapor transmission rate is inversely proportional to [a] the thickness; for example when the thickness is doubled, the water vapor transmission rate is halved. Therefore, when the thickness of the EVA sheet is 1.0mm, the water vapor transmission rate is 37.8g/m^2·day.

Please replace the Page 25 lines 3-11 with the following paragraph:

It can be said from the table 2 that the two-side incidence type structure [requires to prevent] prevents water transmission from the rear surface side [as possible]. The water transmission preventing layer of this invention can prevent deposition of a sodium ion from the front surface glass and prevent degradation of power generation performance of the solar cell element. When the thickness of the rear surface resin film 5 increases and the water vapor transmission rate of it is less than 6.3g/m^2·day, it can function as a water transmission preventing layer.

Please replace the Page 25, lines 11-13 with the following paragraph:

The above embodiments uses the solar cell element of the HIT structure, but other types of solar cell [module] modules using other crystalline solar cell elements and amorphous solar cell elements are applicable.

Please replace the Page 25, lines 15-18 with the following paragraph:

As described above, this invention can provide a solar cell module of high reliability capable of suppressing deposition of sodium ion from the front surface glass, extending time of degrading power generation performance of the solar cell element, and withstanding long-term use [in the] outside.

MARKED-UP VERSION OF CLAIMS

Please amend claims 5 and 9 as follows:

5. (Amended) The solar cell module according to claim 1, wherein the water transmission preventing layer is a [thin] plate glass bonded on a rear surface resin film.

9. (Amended) The solar cell module according to claim 1, wherein the water transmission preventing layer is the rear surface resin film with [the] a water vapor transmission rate not higher than 6.3g/m^2·day.